UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,913	05/06/2002	Krishna S. Kumar	19141.0048U2	8295

23859 7590 12/22/2003

NEEDLE & ROSENBERG, P.C.
SUITE 1000
999 PEACHTREE STREET
ATLANTA, GA 30309-3915

EXAMINER	
NEGRON, ISMAEL	
ART UNIT	**PAPER NUMBER**
2875	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,913	KUMAR ET AL.	
	Examiner	Art Unit	
	Ismael Negron	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35 and 37-42* is/are rejected.

7)☒ Claim(s) *36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Title

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Light Beam Generation, and Focusing and Redirecting Device**.

Abstract

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it includes phrases which can be implied. Correction is required. See MPEP § 608.01(b).

The Examiner suggests deleting the words "*is disclosed*" from the first sentence of the abstract.

3. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4-14, 17, 18, 22-26, 28 and 37-40 are rejected under 35 U.S.C. 102(e) as being anticipated by WANER et al. (U.S. Pat. 5,839,446).

WANER et al. discloses a laser device having:

- **a light source**, Figure 1, reference number 34;
- **the light source emitting at least one beam of light**, as seen in Figure 1;

- **a lens assembly**, Figure 1, reference numbers 27 and 28;
- **the lens assembly focusing the at least one beam of light on a surface plane**, column 3, lines 52-60;
- **the device sequentially directing the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **the lens assembly including a collimating lens**, Figure 1, reference number 27;
- **a focusing lens**, Figure 1, reference number 28;
- **the focusing lens being located spaced from the focusing lens**, as seen in Figure 1;
- **the collimating lens being a cylindrical micro lens**, column 4, line 7;
- **the micro lens being mounted to the light source**, Figure 1;
- **the light source being a laser diode**, column 3, line 67;
- **the laser diode being a semiconductor laser diode chip**, column 3, line 67;
- **the light source and lens assembly being fitted into a hand held housing**, column 3, lines 4-8;
- **a power supply for powering the light source**, Figure 1, reference number 12;

- **a beam steering device for redirecting the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **a controller for controlling the beam steering device**, column 5, lines 45-51;
- **the beam steering device having an optical element selected from the group consisting of a wedge prism, a tilted of angled plane, and a holographic plate**, Figures 5A and 5B; and
- **the light source having at least two laser diodes mounted on a mounting block**, as seen in Figure 2.

Regarding the method claims, such claims were considered to be inherently disclosed by the apparatus of WARNER et al..

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over WANER et al. (U.S. Pat. 5,839,446).

WANER et al. discloses a laser device having:

- **a light source**, Figure 1, reference number 34;

- **the light source emitting at least one beam of light**, as seen in Figure 1;
- **a lens assembly**, Figure 1, reference numbers 27 and 28;
- **the lens assembly focusing the at least one beam of light on a surface plane**, column 3, lines 52-60;
- **the device sequentially directing the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **the lens assembly including a collimating lens**, Figure 1, reference number 27;
- **a focusing lens**, Figure 1, reference number 28; and
- **the focusing lens being located spaced from the focusing lens**, as seen in Figure 1.

WANER et al. disclose all the limitations of the claims, except the collimating lens and the focusing lens being Fresnel lenses.

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use Fresnel lenses as the collimating and focusing lenses as such lenses are old and well known in the are to provide very high magnification values in a very thin, space saving lens. One would have being motivated to use such Fresnel lens to further reduce the size of the apparatus of WANER et al..

6. Claims 15 and 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over WANER et al. (U.S. Pat. 5,839,446).

WANER et al. discloses a laser device having:

- **a light source**, Figure 1, reference number 34;
- **the light source emitting at least one beam of light**, as seen in Figure 1;
- **a lens assembly**, Figure 1, reference numbers 27 and 28;
- **the lens assembly focusing the at least one beam of light on a surface plane**, column 3, lines 52-60;
- **the device sequentially directing the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **the lens assembly including a collimating lens**, Figure 1, reference number 27;
- **a focusing lens**, Figure 1, reference number 28;
- **the focusing lens being located spaced from the focusing lens**, as seen in Figure 1; and
- **a beam steering device for redirecting the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42.

WANER et al. disclose all the limitations of the claims, except the beam steering device having a stepper motor and a stepper motor controller controlling the movement of the beam steering device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a stepper motor as the actuator of the beam steering device of WANER et al.. One would have been motivated since stepper motors are recognized in the illumination art to have many desirable advantages, including precise speed and position control, over other actuators.

7. Claims 19-21, 29-33, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over WANER et al. (U.S. Pat. 5,839,446).

WANER et al. discloses a laser device having:

- **a light source**, Figure 1, reference number 34;
- **the light source emitting at least one beam of light**, as seen in Figure 1;
- **a lens assembly**, Figure 1, reference numbers 27 and 28;
- **the lens assembly focusing the at least one beam of light on a surface plane**, column 3, lines 52-60;
- **the device sequentially directing the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **the lens assembly including a collimating lens**, Figure 1, reference number 27;
- **a focusing lens**, Figure 1, reference number 28;
- **the focusing lens being located spaced from the focusing lens**, as seen in Figure 1; and

- **the light source having at least two laser diodes mounted on a mounting block**, as seen in Figure 2.

WANER et al. disclose all the limitations of the claims, except the device sequentially directing the at least one beam of light to at least four locations on the surface plane, having four laser diodes mounted on a single block, or the locations being approximately 800 microns apart from one another.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to sequentially direct the at least one beam of light to at least four locations on the surface plane, or having four laser diodes mounted on a single block, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

In this case, WANER et al. states that the patented device is capable of producing "multiple beams" (column 5, lines 39-51), such "multiple beams" were considered to suggest a number of beams higher than the claimed four beams. In addition, adding one or more of the disclosed dual laser module (Figure 1, reference number 34) of WANER et al. to increased the beam generating capacity would have flown naturally to one of ordinary skill in the art.

Regarding the locations being approximately 800 microns apart from one another, such spacing would have been obvious to one of ordinary skill in the art at the time the claimed invention was made, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233. The spacing of

the locations can be easily controlled by means of the beam steering device controller until an optimum spacing was obtained for each particular application.

8. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over WANER et al. (U.S. Pat. 5,839,446).

WANER et al. discloses a laser device having:

- **a light source**, Figure 1, reference number 34;
- **the light source emitting at least one beam of light**, as seen in Figure 1;
- **a lens assembly**, Figure 1, reference numbers 27 and 28;
- **the lens assembly focusing the at least one beam of light on a surface plane**, column 3, lines 52-60;
- **the device sequentially directing the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **the lens assembly including a collimating lens**, Figure 1, reference number 27;
- **a focusing lens**, Figure 1, reference number 28;
- **the focusing lens being located spaced from the focusing lens**, as seen in Figure 1;
- **the light source and lens assembly being fitted into a hand held housing**, column 3, lines 4-8; and

- **the light source having at least two laser diodes mounted on a mounting block**, as seen in Figure 2.

WANER et al. disclose all the limitations of the claims, except each of the two laser diodes having a beam steering device controller.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a beam steering device controller for each of the two laser diodes for projecting the light beam independently from one another, increasing the capacity of the device, as per the teachings of WANER et al. (see column 5, lines 39-51).

9. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over WANER et al. (U.S. Pat. 5,839,446).

WANER et al. discloses a laser device having:

- **a light source**, Figure 1, reference number 34;
- **the light source emitting at least one beam of light**, as seen in Figure 1;
- **a lens assembly**, Figure 1, reference numbers 27 and 28;
- **the lens assembly focusing the at least one beam of light on a surface plane**, column 3, lines 52-60;
- **the device sequentially directing the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;

- **the lens assembly including a collimating lens**, Figure 1, reference number 27;
- **a focusing lens**, Figure 1, reference number 28;
- **the focusing lens being located spaced from the focusing lens**, as seen in Figure 1;
- **the collimating lens being a cylindrical micro lens**, column 4, line 7;
- **the micro lens being mounted to the light source**, Figure 1;
- **the light source being a laser diode**, column 3, line 67;
- **the laser diode being a semiconductor laser diode chip**, column 3, line 67;
- **the light source and lens assembly being fitted into a hand held housing**, column 3, lines 4-8;
- **a power supply for powering the light source**, Figure 1, reference number 12;
- **a beam steering device for redirecting the at least one beam of light to at least two locations on the surface plane**, column 5, lines 39-42;
- **a controller for controlling the beam steering device**, column 5, lines 45-51;

- **the beam steering device having an optical element selected from the group consisting of a wedge prism, a tilted of angled plane, and a holographic plate**, Figures 5A and 5B; and
- **the light source having at least two laser diodes mounted on a mounting block**, as seen in Figure 2.

WANER et al. disclose all the limitations of the claims, except each of the two laser diodes being mounted on opposite side of a copper block.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to mount the two laser diodes of WANER et al. on opposites side of a copper block to dissipate the heat generated by the laser diodes to increase the efficiency, duty time, and life of such diodes. In addition, the Examiner takes official notice that the use of such copper laser mounting blocks is not only old and well known in the art, but also a standard practice.

Relevant Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Veres (U.S. Pat. 3,866,032), **Morton et al**. (U.S. Pat. 4,227,776), **Hanchett** (U.S. Pats. 5,576,901 and 6,485,163), **Daum et al**. (U.S. Pat. 6,254,253) and **Kuts** (U.S. Pat. 6,361,188) disclose a plurality of laser devices having beam steering means.

Chernoch (U.S. Pat. 4,233,567), **Allen, Jr. et al**. (U.S. Pat. 4,393,393), **Tuckerman et al**. (U.S. Pat. 4,573,067), **von Arb et al**. (U.S. Pat. 4,881,233) and **Xie** (U.S. Pat. 6,517,221) disclose laser diodes having heat sinks.

Allowable Subject Matter

11. Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

Applicant teaches a device having a plurality of laser diodes, the output of the laser diodes being focused by a lens assembly and sequentially redirected to a plurality of locations ion a plane by beam steering means. The laser diodes are mounted on opposite sides of a copper mounting-block, with a separate insulated wire-bonding pad for each laser diode.

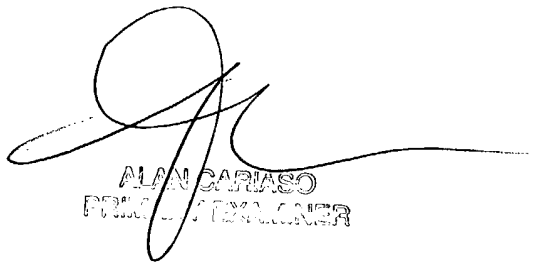
No prior art was found teaching individually, or suggesting in combination, all of the features of the applicants' invention.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negron whose telephone number is (703) 308-6086. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (703) 305-4939. The facsimile machine number for the Art Group is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Inr

December 13, 2003